



Our Climate /  
Our Future

Where do fossil fuels  
like coal, oil, and  
natural gas come  
from?







**Ancient plants and organisms from millions of years ago were slowly buried over time. The heat and pressure transformed the once-living organisms into fossil fuels.**

**Coal was formed from land-based, swampy environments during the Carboniferous Period (360-300 million years ago).**

**Oil and gas were formed from plankton in the ocean around the same time.**

**Most of the energy we use comes from burning fossil fuels, and we know that's what's causing our planet's temperature to rise so quickly.**

Changes in the Sun's output, volcanic activity, large meteor impacts and changes to the shape of Earth's orbit are all **natural causes** of climate change but they're **operating in the background** compared to human-produced CO<sub>2</sub>.

**Natural changes in Earth's climate typically happen over thousands of years, whereas human-caused climate change is occurring over decades.**

**It's the reason we are in a climate crisis.**

(IPCC / Union of Concerned Scientists)



The consensus on the existence of observable, measurable and dangerous anthropogenic global warming amongst experts, within the peer-reviewed literature and amongst major scientific organisations has existed largely unchallenged since the early 1990s.

Numerous studies that have attempted to quantify the level of **consensus** have pegged it at **97% or more**.\*

Yet despite this, the level of **public acceptance** of mainstream climate science as measured in dozens of polls has frequently been below **50% in Australia and the USA, and only somewhat higher in the UK** (2017).

A great deal of this controversy has been fostered by a **deliberate misinformation campaign by vested interests (fossil fuel industries)**, parallels and connects with the misinformation campaign run by the tobacco industry regarding the public health.\*\*

\*John Cook, Dana Nuccitelli, Sarah A Green, Mark Richardson, Bärbel Winkler, Rob Painting, Robert Way, Peter Jacobs and Andrew Skuce, "Quantifying the consensus on anthropogenic global warming in the scientific literature" in Environmental Research Letters 8/2 (2013), doi:10.1088/1748-9326/8/2/024024.

\*\* Naomi Oreskes and Eric Conway, Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming (London: Bloomsbury, 2010); James Hoggan, Climate Cover-Up: The Crusade to Deny Global Warming (Vancouver: Greystone Books, 2009); Clive Hamilton, Scorcher: The Dirty Politics of Climate Change (Black Inc, 2007); George Monbiot, Heat: How can we stop the planet burning (London: Penguin, 2006), 20-42.

## ARE YOU AWARE THERE IS A CONSENSUS ON CLIMATE CHANGE?

## GLOBAL WARMING

### SCIENTIFIC EVIDENCE

Are scientists convinced?

**YES**  
**97%**  
of climate scientists think global warming is significantly due to human activity



There's a consensus of scientists because there's a consensus of evidence

**Only 1 out of a hundred scientists rejects the consensus on human-caused global warming.**





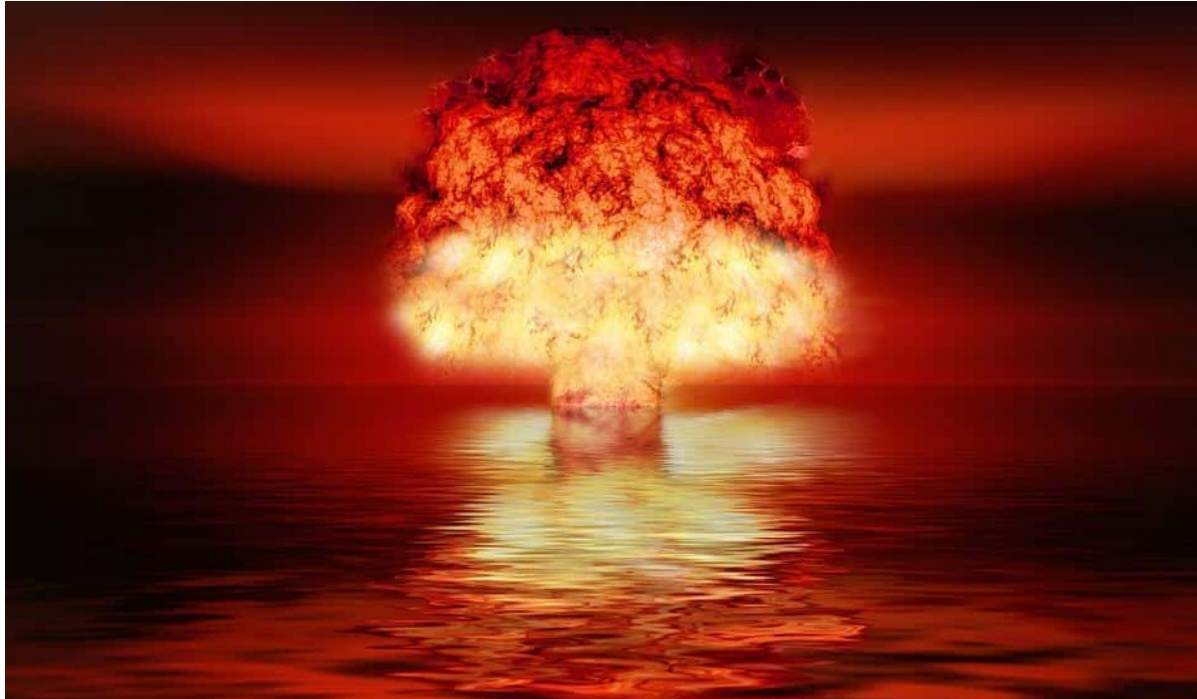
## GENERATING HEAT

We manufacture an incredible amount of heat.

Consider the “Little Boy” **atomic bomb** that destroyed Hiroshima.

The energy released in that detonation was equivalent to about **15 kilotons of TNT** generated from that bomb.

*We drop that same amount of heat into the atmosphere every year!!!!*



*How much do you  
think it is?  
every month....?  
every week....?*

Sorry – that's wrong. It's more!



Sorry, no, that is also incorrect.

*How about every day?*

*What do you think?*





Wrong again

*.... Could it possibly  
be every hour?*

*No way!*

*That would be too  
CRAZY, right?!!!*



Nope –  
*every second?!!!!*  
***THAT'S INSANE!!!!***



# EVERY QUARTER SECOND!

If we tally up the heat accumulating in the oceans, warming the land and atmosphere and melting the ice, we find that

**HUMAN ACTIVITIES  
CONTINUE TO BUILD UP  
PLANETARY HEAT AT A RATE  
OF 4 HIROSHIMA BOMB  
DETONATIONS WORTH OF  
HEAT EVERY SECOND!!!\***

\*Church, J. A., White, N. J., Konikow, L. F., Domingues, C. M., Cogley, J. G., Rignot, E., Gregory, J. M., van den Broeke, M. R., Monaghan, A. J., and Velicogna, I. (2011), Revisiting the Earth's sea-level and energy budgets from 1961 to 2008, *Geophys. Res. Lett.*, 38, L18601, doi:[10.1029/2011GL048794](https://doi.org/10.1029/2011GL048794).

Balmaseda, M. A., Trenberth, K. E., and Källén, E. (2013), Distinctive climate signals in reanalysis of global ocean heat content, *Geophys. Res. Lett.*, 40, 1754–1759, doi:[10.1002/grl.50382](https://doi.org/10.1002/grl.50382).





## CLIMATE CHANGE IS OUR MOST EPIC CHALLENGE

Climate change is the most epic challenge **of this generation and generations to come.**

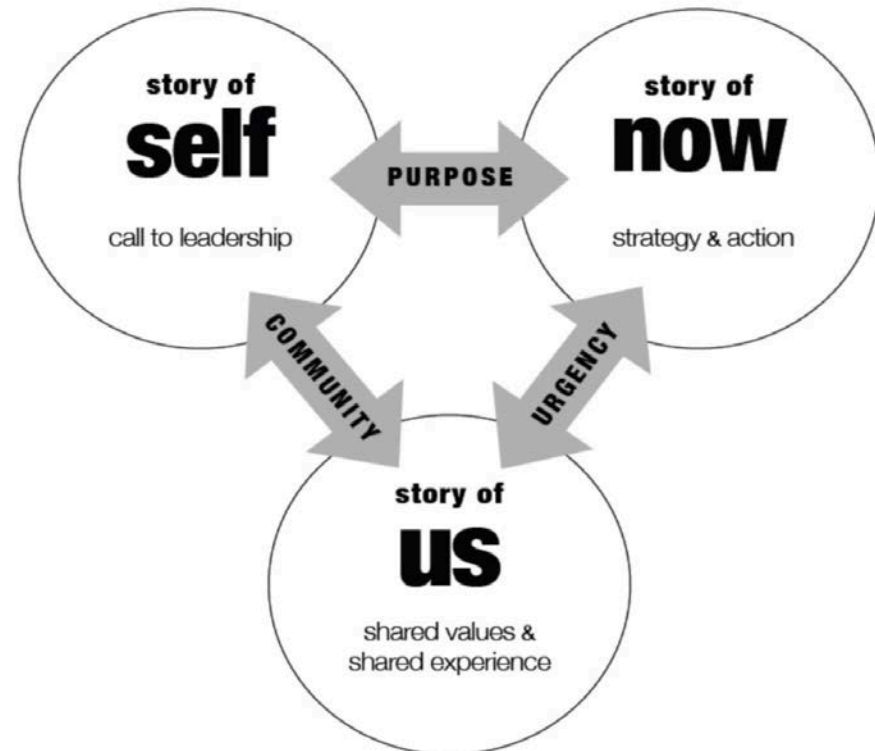
It's not just about melting glaciers or disappearing polar bears.

It's not a story that starts somewhere in a distant future, **it's a story about us - NOW.**

Young people are **already beginning to be incredibly affected by climate change,** and

**young people are most in a position to begin mitigating the problem/s.**

## WHAT ARE SOME OF THE PROBLEMS?







**Climate change is the most complex ecological threat in the public imagination; it presents the most serious impacts for humanity on a decadal timescale; it complicates and worsens almost all the other issues (IT IS A THREAT MULTIPLIER - interacting in all kinds of complex ways with a range of other threats) -**

Sometimes it has a direct impact (e.g. ocean warming causes ocean acidification), sometimes intensifies impacts (e.g. biodiversity decline), and sometimes joins with other impacts to produce common second order threats (e.g. soil degradation and their joint effect on food security).

LEARN MORE ABOUT HOW CLIMATE CHANGE CAUSES OCEAN ACIDIFICATION: <https://www.ucsusa.org/resources/co2-and-ocean-acidification>

LEARN MORE ABOUT HOW CLIMATE CHANGE CAUSES SPECIES DECLINE & EXTINCTION: [https://wwf.panda.org/our\\_work/wildlife/problems/climate\\_change/](https://wwf.panda.org/our_work/wildlife/problems/climate_change/)

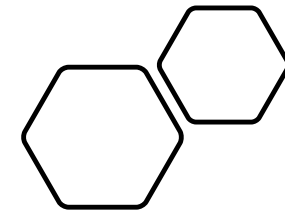
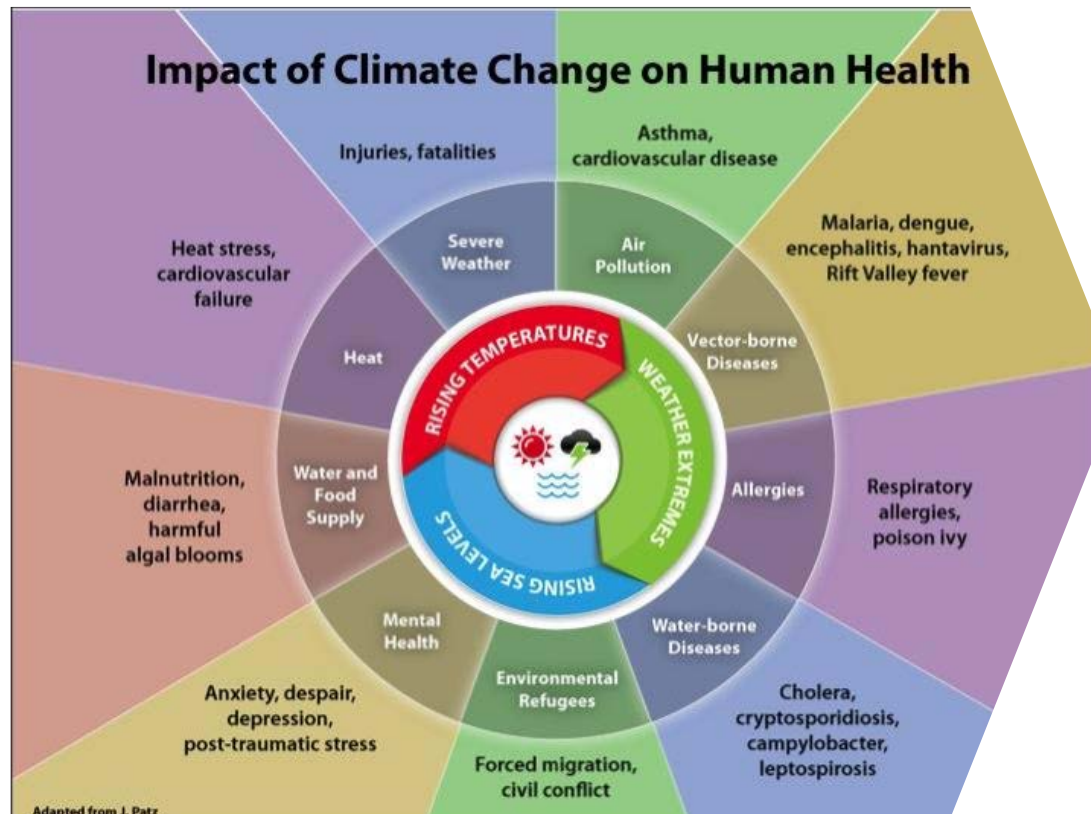
LEARN MORE ABOUT HOW CLIMATE CHANGE CAUSES SOIL DEGRADATION & FOOD INSECURITY <http://www.fao.org/3/k2595e/k2595e00.pdf>

**Climate change is one of the most difficult problems to remedy, with its causes intimately connected to major centres of geopolitical power and to the engine of the global economy that depends on fossil-fuelled energy systems.**

**As a global problem, it is implicated in a wide variety of issues (e.g. conflict, resource access, freshwater stress, forced migration, and so on).**

Climate change **shares many of its ethical dilemmas with other ecological problems**, but few (if any) others have all the features of climate change, making it something of a **paradigmatic problem** with other issues sharing some subset of its features.

***IT ALSO RESULTS IN THREATS TO HUMAN HEALTH. CAN YOU IDENTIFY SOME?***



THESE ALL FEED BACK INTO A LOOP THAT MAKES IT MORE DIFFICULT TO RESPOND TO COMPOUNDING THREATS.

**HOW?**



## CLIMATE CHANGE

*What are some of the impacts of climate change that you have witnessed?*



In Florida, we are witnessing sea level rise, intense storms, droughts, extreme swings in heat and cold, extreme wet and dry, flooding, wildfires, worse air pollution, increase in ticks, increased pollen allergies.

# CLIMATE JUSTICE

People who are the least responsible for climate change are often the ones who suffer the most from it.

*Can you think of an example?*



Climate justice advocates confront how the impacts of climate change are **disproportionately felt by the very people who are least responsible** for contributing to climate change, including those who are low-income, people of color, people in developing countries, Native people, and youth.



Understanding who is most impacted by climate change, how and why they're most impacted, allows us to create the most effective solutions to addressing the climate crisis and empowering **communities on the frontlines of climate change impacts, and are also on the forefront of climate change solutions** and are uniquely equipped to lead.

# Climate change is a hot topic of debate, but it can get so heated that people don't want to talk about it anymore.

There are SO many reasons not to listen and talk about climate change. It can be exhausting, it can make us feel depressed and disempowered, or we don't think it's important.

*67% of Americans are "moderately" or "very interested" in global warming, however...*

***69% of Americans "rarely" or "never" discuss climate change with family and friends.***

***As a result, only 26% of Americans say it is "extremely" or "very" important to them on a personal level.***

- Source: Our climate our future (2016)

**How important is *climate change* to you?**

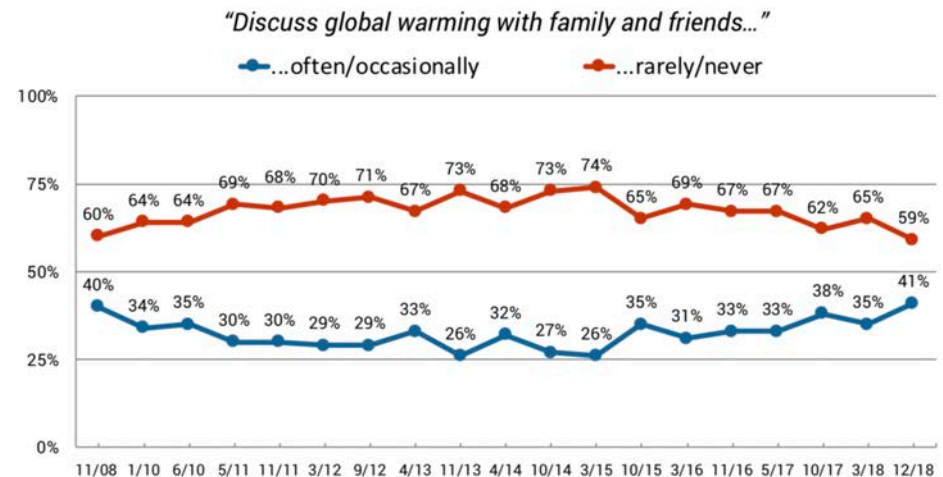
**How often do you discuss it?**

**Who do you discuss it with?**

***Is it important to discuss and why?***

## Why are we not talking about it?

### About Four in Ten Americans Say They Discuss Global Warming With Family and Friends "Often" or "Occasionally"





# Climate Science as Culture War

The public debate around climate change is no longer about science—it's about values, culture, and ideology.

## The Ideology of Climate Change Denial in the United States



In the United States, adult perceptions of climate change (where people are **considerably less aware of the issues** than in other countries) are shifting.



A 2018 survey showed **that 70 percent of people acknowledge that global warming is happening** (up 12 percentage points in a three-year period);



49 percent are “extremely” or “very sure” that it is occurring;

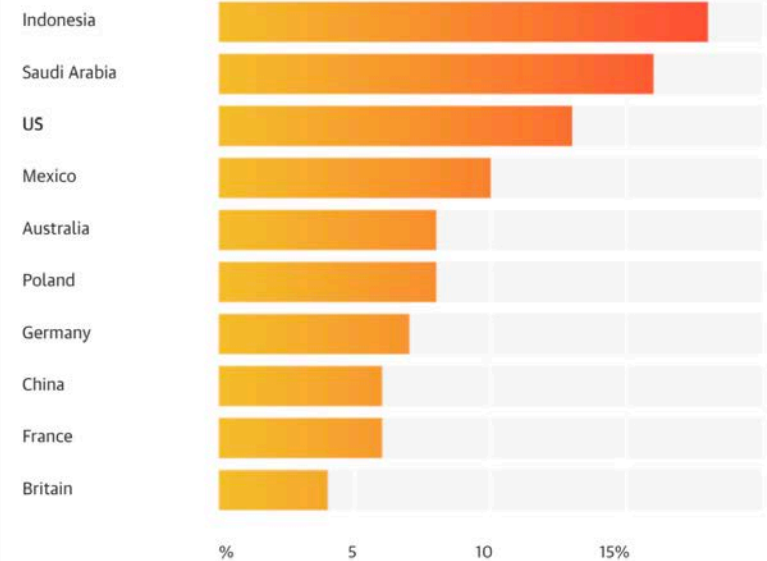


and **58 percent believe it is anthropogenically induced.**

**DO YOU THINK TAKING ACTION ON GLOBAL WARMING IS IMPORTANT?  
WHAT IS YOUR MOST COMPELLING REASON FOR DOING SO?**

## The U.S. has a unique culture of climate change denial

The US has the highest percentage of climate deniers in the rich world



Guardian graphic. Source: YouGov/Guardian

# Climate Denial: Emotion, Psychology, Culture, and Political Economy

The top three reasons people in the US advocate for taking action to reduce global warming are to:

“provide a better life for our children and grandchildren” (24 percent);

“prevent the destruction of most life on the planet” (16 percent);

and to “protect God’s creation” (12 percent).

Lesser concerns include extreme weather prevention (8 percent);  
species extinction (6 percent);  
to improve health (6 percent);  
to prevent global poverty and starvation (4 percent);  
to lessen dependence on foreign oil (3 percent);  
to improve national security (2 percent);  
to create green jobs and a stronger economy (1 percent).

Leiserowitz et al., “Climate Change in the American Mind.”

*Additionally, to some degree, people believe:*



41 PERCENT BELIEVE  
GLOBAL WARMING IS  
A MORAL ISSUE;



29 PERCENT A  
SOCIAL JUSTICE  
ISSUE;



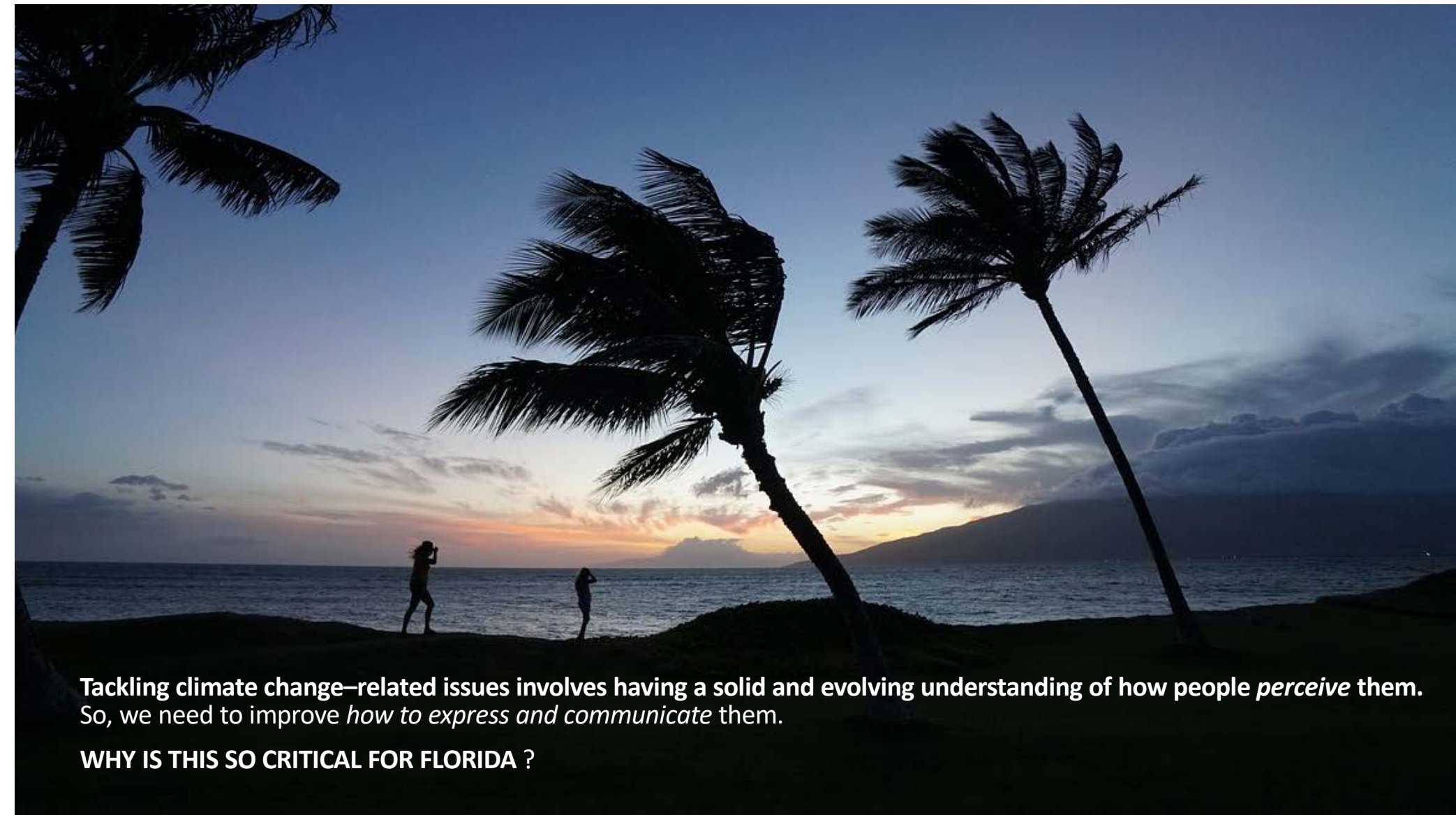
28 PERCENT A  
POVERTY ISSUE;



25 PERCENT A  
NATIONAL SECURITY  
ISSUE;



13 PERCENT A  
RELIGIOUS ISSUE.



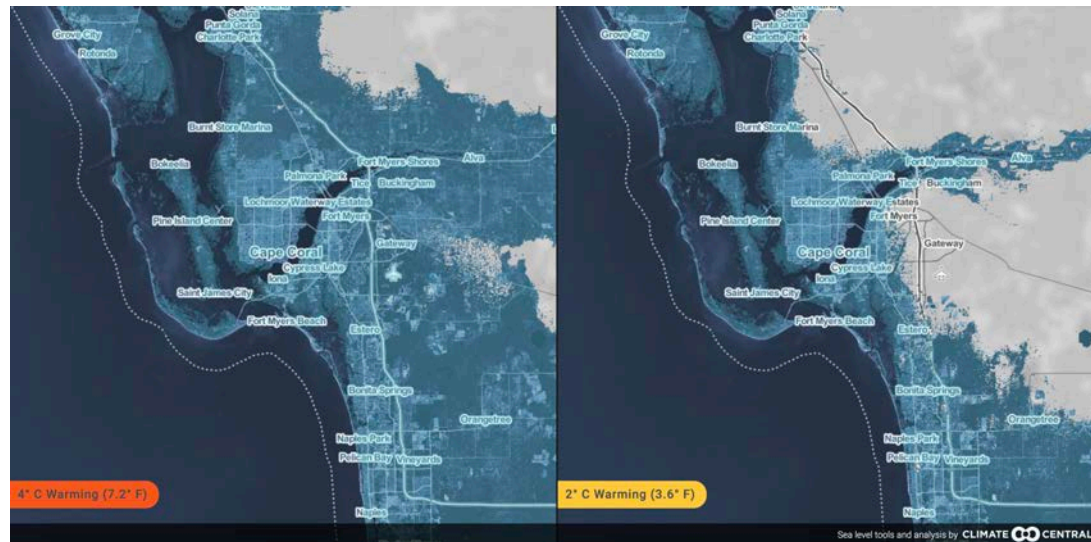
**Tackling climate change–related issues involves having a solid and evolving understanding of how people *perceive* them. So, we need to improve *how to express and communicate* them.**

**WHY IS THIS SO CRITICAL FOR FLORIDA ?**



# SWFL

# ?



Sea-level rise  
warming scenarios

We are living in a flood-prone, storm-battered peninsula where:

“50-year rain events” are now coming at close intervals (one came two weeks before Irma, which was also supposedly a 50-year event).

Springtime now often brings dire water shortages and summer brings record-breaking floods.

Federal taxpayers spent **billions of dollars** on **hurricane relief**. Even though Irma did not turn out to be the ‘big one’ it still cost billions. A slightly different track could have completely wiped out Lee County, boosting the price tag of **cleanup to hundreds of billions**.

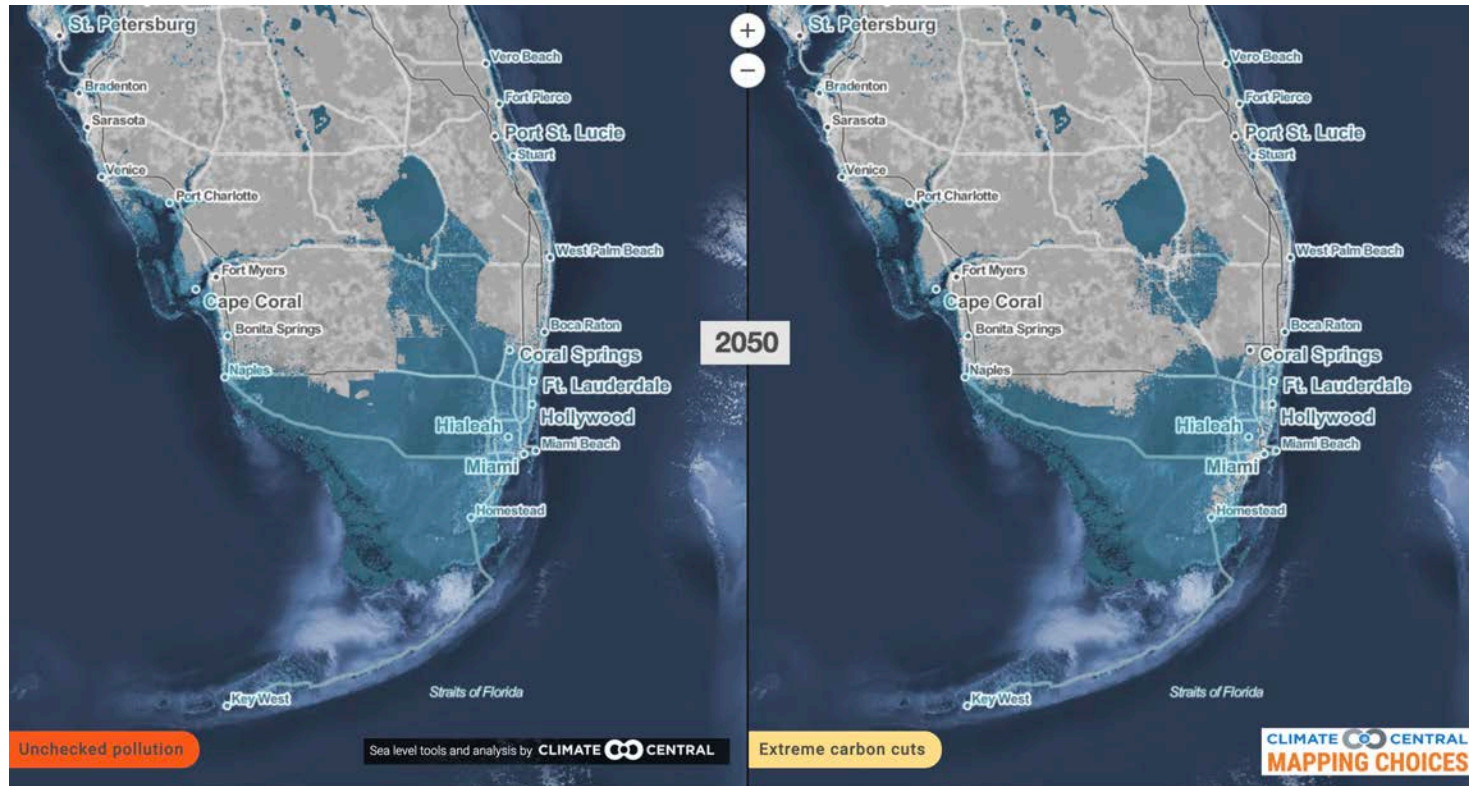
And even when hurricanes aren’t smashing Florida, **rapid sprawling growth** that is already destroying our remaining natural resources is **accelerating climate change and making its impacts more dangerous**.



Woodrow Wilson Center

# Flooded Future: Assessing the Implications of New Elevation Data for Coastal Communities

By 2050, sea level rise could push the high-tide line above the homes of 150 million people living on coastlines today. Rising sea levels could also push chronic floods higher than land currently home to 300 million people—that number could reach 480 million by 2100. This will have wide-ranging and profound global and local implications for economic, social, environmental and political stability.



## *Climate change impacts are cost Floridians hundreds of millions \$.*

The next best land scam to buying swampland is a home that might be literally under water by the end of the century.\*\*

Miami may be the US city most in danger of being swallowed by rising seas due to climate change.

12,000 Miami Beach homes are in danger of chronic flooding within the next 30 years.\*\*\*

It could be completely underwater in 80 years.

Yet both rents and home prices continue to rise there. Developers are still building mansions by the beach, and sales are booming,\*+ even as they become increasingly susceptible to sea-level rise.\*\*\*

The optimism in the Miami area real-estate market may be due, at least in part, to efforts like elevating some city streets++++ and Miami Beach's \$500 million dollar plan\*\*\*\*\* to combat rising oceans. The pump system\*++ aims to drain streets (and sewers) prone to sunny-day flooding+++.

**WHAT'S THAT?:** *sunny-day* or *nuisance flooding* is the temporary inundation of low-lying areas, especially streets, during exceptionally high tide events

The measures are unlikely to be enough.

**By 2070, sunny-day flooding could be everyday flooding++++ in this coastal city.**

Miami isn't the only part of Florida that has to contend with the destructive forces of nature.

According to NOAA, **Florida has the most losses because of catastrophic events of any state in the US. In the 30 years between 1986 and 2015, insured losses alone amounted to \$68.6 billion.**<sup>^</sup>

Florida is located directly in the path of hurricanes.<sup>^^</sup> **As we experience more extreme weather events due to climate change, hurricanes will hit with increasingly damaging winds (and storm surges),<sup>^^^</sup> like 2017's Hurricane Irma (a Category 5 storm with 185 mph winds).**

In terms of insured U.S. coastal properties vulnerable to hurricanes, Florida ranks second (to NYC) with \$2.86 trillion.

The cumulative **national cost of the 16 separate billion-dollar weather events in the U.S. in 2017 was \$306.2 billion, breaking the previous cost record of \$214.8 billion (2005).**

**WHAT ELSE MIGHT THIS TELL US?**



\*\* [https://www.businessinsider.com/american-cities-disappear-sea-level-rise-2100-2019-3?utm\\_source=msn.com&utm\\_medium=referral&utm\\_content=msn-slideshow&utm\\_campaign=bodyurl](https://www.businessinsider.com/american-cities-disappear-sea-level-rise-2100-2019-3?utm_source=msn.com&utm_medium=referral&utm_content=msn-slideshow&utm_campaign=bodyurl)

\*\*\* [https://www.businessinsider.com/american-cities-disappear-sea-level-rise-2100-2019-3?utm\\_source=msn.com&utm\\_medium=referral&utm\\_content=msn-slideshow&utm\\_campaign=bodyurl](https://www.businessinsider.com/american-cities-disappear-sea-level-rise-2100-2019-3?utm_source=msn.com&utm_medium=referral&utm_content=msn-slideshow&utm_campaign=bodyurl)

\*+ <https://www.npr.org/2018/05/21/611919853/foreign-investors-shrug-off-miamis-rising-sea-levels>

\*\*\* <https://www.businessinsider.com/miami-floods-sea-level-rise-solutions-2018-4>

\*\*\*\* <https://www.bbc.com/future/article/20170403-miamis-fight-against-sea-level-rise>

\*++ <https://www.miamiherald.com/news/local/community/miami-dade/miami-beach/article129284119.html>

+++ [https://www.businessinsider.com/sea-level-rise-high-tides-sunny-day-flooding-coastal-cities-2018-4?utm\\_source=msn.com&utm\\_medium=referral&utm\\_content=msn-slideshow&utm\\_campaign=bodyurl](https://www.businessinsider.com/sea-level-rise-high-tides-sunny-day-flooding-coastal-cities-2018-4?utm_source=msn.com&utm_medium=referral&utm_content=msn-slideshow&utm_campaign=bodyurl)

++++ <https://www.thenextmiami.com/map-every-miami-beach-street-raised-2025/>

+++++ <https://www.miamiherald.com/news/local/environment/article207511429.html>

<sup>^</sup> <https://coast.noaa.gov/states/fast-facts/hurricane-costs.html>

<sup>^^</sup> <https://www.businessinsider.com/most-destructive-hurricanes-in-us-history-2017-8#hurricane-hugo-1989-71-billion-4>

<sup>^^^</sup> [https://www.businessinsider.com/strongest-atlantic-hurricanes-wind-speed-allen-irma-wilma-2017-9#hurricane-allen-1980-190-mph-11?utm\\_source=msn.com&utm\\_medium=referral&utm\\_content=msn-slideshow&utm\\_campaign=bodyurl](https://www.businessinsider.com/strongest-atlantic-hurricanes-wind-speed-allen-irma-wilma-2017-9#hurricane-allen-1980-190-mph-11?utm_source=msn.com&utm_medium=referral&utm_content=msn-slideshow&utm_campaign=bodyurl)

<sup>^^^</sup> [https://www.businessinsider.com/strongest-atlantic-hurricanes-wind-speed-allen-irma-wilma-2017-9#hurricane-allen-1980-190-mph-11?utm\\_source=msn.com&utm\\_medium=referral&utm\\_content=msn-slideshow&utm\\_campaign=bodyurl](https://www.businessinsider.com/strongest-atlantic-hurricanes-wind-speed-allen-irma-wilma-2017-9#hurricane-allen-1980-190-mph-11?utm_source=msn.com&utm_medium=referral&utm_content=msn-slideshow&utm_campaign=bodyurl)



CLIMATE CHANGE INTERFERES IN NATURAL CYCLES IN COMPLEX WAYS THAT CANNOT ALWAYS BE EASILY PREDICTED OR FIXED.

What are some other examples?



FLORIDA'S CITRUS INDUSTRY IS IN DANGER AND THE ECONOMIC IMPACT COULD BE DEVASTATING. ACROSS THE STATE, CLIMATE CHANGE IS RIPENING CONDITIONS FOR THE SPREAD OF A BACTERIA THAT HAS INFECTED 90% OF FLORIDA'S CITRUS GROVES. THE HUANG LONG BING BACTERIA INFECTS CITRUS FRUITS AND PREVENTS THEM FROM RIPENING. THE BACTERIA IS SPREAD BY THE CITRUS PSYLLID BUG. THE PSYLLID THRIVES IN WARM TEMPERATURES THAT ARE RAPIDLY INCREASING DUE TO CLIMATE CHANGE. CITRUS IS FLORIDA'S SECOND-LARGEST INDUSTRY BEHIND TOURISM, PRODUCING 80% OF THE COUNTRY'S ORANGE JUICE. WITH THESE CHANGES, THE FLORIDA CITRUS INDUSTRY COULD BE GONE WITHIN THE NEXT 10-15 YEARS.





*What are some of  
the costs of NOT  
addressing climate  
change?*

*How do you think  
those compare to  
the costs of taking  
action?*

INACTION  
KILLS  
POSSIBILITY

**There are risks and costs  
to action...**



***By the government not acting  
on climate change, are they  
committing mass murder?***

## THE MASSIVE COST OF NOT ADAPTING TO CLIMATE CHANGE

**Many economists argue that inaction on climate change is far costlier than action – up to 20% of GDP.**

Trillions of dollars are needed to adapt civilization to the near-term consequences of climate change while tens of trillions of dollars are needed to slow its advance. Yet the payoff is enormous.

### THE ECONOMIC YIELDS FROM ADAPTATION

The Global Commission on Adaptation recently concluded that **\$1.8 trillion in investment was needed by 2030, concentrated in five categories— weather warning systems, infrastructure, dry-land farming, mangrove protection and water management—**would yield **\$7.1 trillion in economic benefits.**

<https://www.scientificamerican.com/article/american-consumption-habits/>

<https://gca.org/global-commission-on-adaptation/commission-news/global-leaders-call-for-urgent-action-on-climate-adaptation-commission-finds-adaptation-can-deliver-7-1-trillion-in-benefits>

**Because of systematic governmental inaction, we are on a path taking us far out of anything experienced by humanity at a rate many times faster than anything in human history.**

Negative impacts are already accumulating in physical systems (e.g. worsening heat waves, droughts, floods, bush fire danger, ice melt, sea level rise), ecological systems (e.g. coral bleaching, shifting species distribution, salt water intrusion) and human systems (e.g. agricultural yields, economic costs, public health harms, cultural displacement, and heightened pressure around various regional tensions).

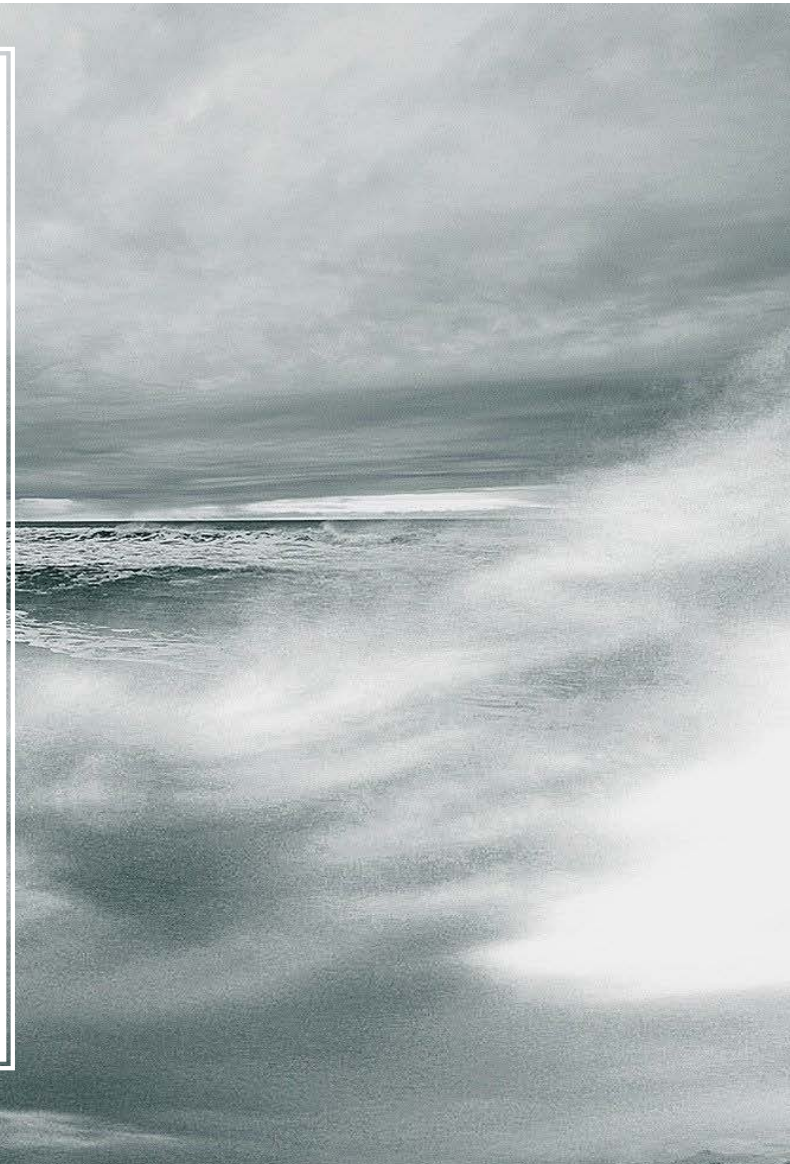
Climate change multiplies existing familiar threats and many of the biggest consequences are likely to be indirect: freshwater stress, food security, displacement and conflict. The current trajectory of greenhouse gas emissions in the absence of effective policies to the contrary, could well see four degrees Celsius or more of global average surface temperature rise by 2100. This is probably not compatible with globalised industrial civilisation (at least in anything like its present form), would radically alter virtually every ecosystem on the planet and is unlikely to be stable, with feedbacks leading to further warming after 2100.

Long-term sea level rise would be tens of metres, displacing hundreds of millions of people. This rate of change is likely to be beyond adaptation for most human and natural systems. Even the agreed international target of two degrees has very serious costs and dangers, and the much-discussed 2015 Paris Agreement still contains national commitments that could well see three or more degrees of warming by late this century.

**The scale of the threat is difficult to overstate. Plausible scenarios involve the extinction of over half of all extant species, the collapse of most agricultural output, the displacement of tens or hundreds of millions by rising seas and large regions of the tropics rendered uninhabitable.**

The knock-on geopolitical effects of such calamity can be summarised simply by noting the scarcity of historical examples in which significant declines in social prosperity were not accompanied by significant increases of violence within or between societies.

***How important is it that we (as a society) change the way we think about the climate crisis, and can changing the way we think and what we value also change how we act?***





**At one level, climate change is a crisis about carbon** - the relocation of a trillion tonnes or more of carbon and its impacts on the biosphere (the entire biological system ⇒ air, water, land, plants, and animal life).

**At another level it is a failure of global institutions to respond & adapt: to manage risk, or change our economic dependencies, to account for environmental externalities, or of 'us' to live within carrying capacity limits.**

The impacts go **beyond the primary changes to the planetary energy budget and its shifting patterns of distribution,** flowing on to **the secondary effects of degrading the abundance and diversity of ecosystems** and then through to **tertiary impacts on human systems** affected by primary or secondary impacts. It is here, **at the tertiary level of public health, economics, culture, infrastructure and geopolitical stability, that the most dramatic yet least predictable effects are likely to be found.**

**The US is already experiencing the tertiary impacts of climate change. In recent years, it's been hit by a string of natural disasters.**

**Hurricanes (Maria ravaged Puerto Rico, killing 3,057 people)**

**The California wildfires (Camp Fire leveled 18,000 buildings, displaced 50,000 people and left 86 dead)**

**Record floods in the midwest swamp a million acres of farmland (threatening the nation's grain supply)**



***Yet our government still has a policy of denial.*** In the White House there is a **president who denies climate science** even though Americans can see the climate is changing. In Iowa, in the heart of **the midwest, farmers** who have tended the land for centuries now **openly talk about the impact of the climate crisis.** **They have no choice** – it is threatening their livelihoods. **In California, drought in recent years has been so severe that groundwater depletion means the land has sunk under their feet.**

**And here in Florida we are planning to spend \$4bn to counteract the effects of sea-level rise.**

The public debate about the climate crisis is much less evident here than in Europe.

One of the biggest differences is in the **media coverage** between the US and Europe.

**And not just around climate, but a host of other environmental threats, from the scourge of ocean plastic to toxic chemicals in the US food supply.**

<https://www.theguardian.com/us-news/2019/jul/02/us-plastic-waste-recycling> / <https://www.theguardian.com/us-news/series/toxic-america>



When the UN released a landmark report in October 2018 warning we have just **12 years left** to radically **slash global carbon emissions** and **stave off global disaster**, only **22 out of 50 of the largest newspapers in the US** covered it.

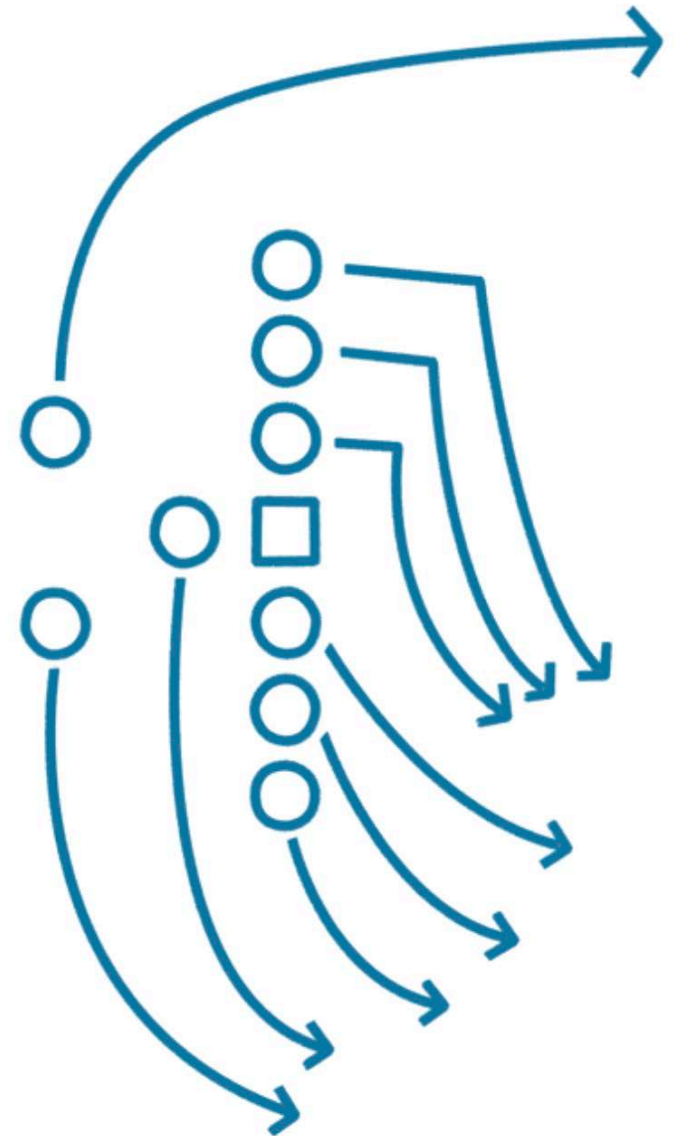
US news organizations fell for the **fossil industry's PR** playbook in the 80s, 90s and into the 00s when they successfully **repositioned global warming as theory, not fact**. In his book, *Falter*, Bill McKibben calls this “the most consequential cover-up in human history”.

Big money and Washington **lobbying** have **negatively influenced policy debates in the US** – and the way in which climate has been reported is one of the most egregious examples of that **influence**.

We need loud voices raised against falsehoods, special interests and the corrosive impact of big money (**stop corporate lobbying from running our political system**).

<https://www.theguardian.com/environment/2019/apr/22/why-is-the-us-news-media-so-bad-at-covering-climate-change>

***What else can be done?***



## States and cities are setting big renewable energy targets.

**More than 3,800 US states, cities, and businesses—equivalent in size to the world’s third-largest economy—have affirmed their support of the Paris Climate Agreement goals.** Common-sense policies—bolstered by tumbling renewable energy prices—are overcoming partisan divides and longstanding dependence on dirty fuels.

The states of New Mexico, Nevada, New York, Maine, and Washington, California and Hawaii aim to reach **100 percent clean energy by 2050** or sooner.

**New energy efficiency standards** in Hawaii are projected to save residents up to \$38 million on their utility bills by 2025.

Puerto Rico, Washington, D.C., and at least 135 cities also made similar commitments.

Nevada committed to 100% clean energy by 2050 with unanimous bipartisan support in both houses. Will generate more than \$539 million in wages and an additional 11,170 **green-collar jobs** in 2030, savwhileing utility customers nearly \$2 million.

New Mexico’s goal is to be 100% carbon-free by 2045, while supporting economic and workforce development through green jobs.

New York City is leading the nation in climate action. It aims for 100% carbon-free electricity by 2040, mandates **strong energy efficiency savings**, and is creating key equity mandates to ensure all New Yorkers benefit from the transition to cleaner energy sources - 35 percent of the benefits of the state's clean energy program will go to the **marginalized communities** that get hit hardest by pollution and climate change.

New York State is also adopting a building efficiency mandate. Buildings remain something of an emissions blind spot in the U.S., but states are beginning to act on this sector as well.

California is also **tackling building emissions**, laying the groundwork for **decarbonizing more buildings**, while other states such as Massachusetts have taken the lead in **adopting building energy efficiency mandates** and programs. In San Jose and other cities, new buildings will have to be heated and cooled by clean electricity, not natural gas or other dirty fuels.

The state of Washington has set **minimum efficiency standards for appliances** that are not regulated by the federal government (e.g. showerheads, portable air conditioners, and faucets).

New Mexico is updating its energy efficiency building code and increased utility energy efficiency investments.

Colorado joined several **states in adopting federal efficiency standards to backstop any federal rollbacks.**

In the coal-reliant Midwest, Illinois has committed to go 100% renewable and is now in the second year of passing new legislation to enact one of the most aggressive energy efficiency standards in the nation, with an emphasis on ensuring that low income consumers have access to the benefits of efficiency.

Just as every day seems to bring some new and unsettling headline about the effects of climate change, it also brings a steady drumbeat of actions by forward-thinking leaders. **The U.S. transition to a clean energy** economy may only just beginning, but it is, by necessity, **unstoppable.**

<https://www.sierraclub.org/ready-for-100/commitments> / [https://www.nrdc.org/experts/diit-kennedy/paris-oullout-wont-derail-state-local-climate-nrogress?utm\\_source=fb&utm\\_medium=post&utm\\_campaign=Climate&fbclid=IwAR3eCmyeS111B&ct=591uF\\_2heRt\\_mrbclUDYFvr8w3D2-Xs7aGaGLV738](https://www.nrdc.org/experts/diit-kennedy/paris-oullout-wont-derail-state-local-climate-nrogress?utm_source=fb&utm_medium=post&utm_campaign=Climate&fbclid=IwAR3eCmyeS111B&ct=591uF_2heRt_mrbclUDYFvr8w3D2-Xs7aGaGLV738) / <https://www.nrdc.org/experts/miles-farmer/new-york-can-lead-equitable-and-ambitious-climate-law>



# WHAT DO YOU THINK ABOUT THIS STATEMENT?

**“I don’t care if what I’m doing – what we’re doing – is hopeful. We need to do it anyway. Even if there’s no hope left and everything is hopeless, we must do what we can.”**

Greta Thunburg

From individual and collective actions, to subnational policy and international initiatives, people everywhere are organizing to act.

Reforestation is a great example of people working on a massive scale to replant our forests.

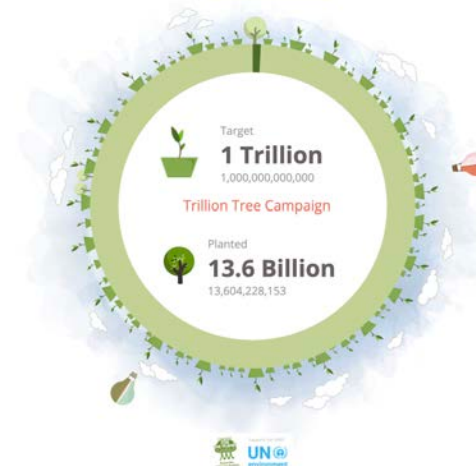
As of November 2019, 13 years since the Trillion Tree Campaign's launch, over 13.6 billion trees have been planted across 193 countries.

Which countries are planting the most trees?

**Roll of Honour top 10 countries**

- China 2.8 billion.
- India 2.5 billion.
- Ethiopia 1.7 billion.
- Pakistan 1 billion - known as Billion Tree Tsunami.
- Mexico 789 million.
- France 723 million.
- Turkey 716 million.
- Peru 646 million.

Because global reforestation binds at least a quarter of the annual man-made CO2 emissions and at the same time creates prosperity in the Global South.





# SMALL SUPPORTING ACTIONS ARE HELPING PROTECT OUR VULNERABLE PLANET IN OTHER WAYS TOO



## PROJECTS

Degraded landscapes are restored by combining traditional techniques with new technology and a strong communication approach.



*Source: Obiektyw1855 via Reddit*

**WHAT ARE SOME OTHER WAYS THAT PEOPLE ARE COMBATING CLIMATE CHANGE IMPACTS AND TRYING TO REVERSE THE LOSSES THAT ARE BEING INCURRED?**

# Visual climate change communication



A pressing challenge for climate change communication is to widen and deepen public engagement with climate change.

Reaching out of the 'green ghetto' means telling new stories about climate change that connect with the values of a much broader range of people.

But while the move towards a more diverse and inclusive style of verbal and written climate communication has gathered pace, the iconography of climate change has remained relatively static.

The imagery used to communicate climate change can and should be more diverse than polar bears and melting ice in helping communicators tell a better visual story about climate change.



*How do you feel when you see images such as these, with a few people in them, doing stuff?*





*Why do you think they have appeal?*





Like installing solar panels, home insulation and weatherization is a practical and 'sensible' response to climate change that is grounded in notions of 'efficiency' and 'productivity'.

In general, images of climate 'solutions' such as solar panels this one, of loft insulation, are as favorably received by those on the political right (in terms of producing a positive emotional feeling) as those on the political left.

These are ideas fit easily with a conservative mindset – and therefore may be more engaging from a rightwing perspective.



Images of climate 'solutions' tend to make people feel more able to do something about climate change, but at the same time can reduce people's sense that the issue is an important one, as they typically don't convey a sense of threat or risk.





Dramatic and potentially fear-inducing images of climate impacts and extreme weather are good at capturing people's attention.

They may make climate change seem more important and are emotionally powerful.

However, they can also act to distance viewers (both psychologically and geographically) leaving them feeling overwhelmed.

How does this image make you feel?



A single person is easier to identify with than a large group of people © Paula Bronstein



Imagery containing people or animals tends to be more powerful.

People respond more strongly to photos of one or two individuals (rather than many).



A single person is easier to identify with than a large group of people © Paula Bronstein

Do you favor seeing 'authentic' images over staged photographs?



*The image is unusual but easy to understand, and is likely to produce a positive emotional response. Rather than a staged 'celebration' of solar panels, this young person is actively interacting with a positive climate solution.*

What about this image?





Images that can be quickly and easily understood – such as smokestacks, deforestation, and polar bears on melting ice – tend to be positively received by the general public.

These familiar, ‘classic’ images may be especially useful for communicating climate change to audiences with limited knowledge or interest in the subject, but they also prompt cynicism and fatigue.

They are effective ways of communicating to an audience that ‘this story is about climate change’.

*But is it a story they want to hear?*

**Less familiar (and more thought-provoking) images can help tell a new story about climate change and remake the visual representation of climate change in the public mind.**



*Using humour/contrast and irony are ways of telling new climate stories.*

© Francis R. Malasig/epa/Corbis



Do you find this image confusing in relation to climate change?



Why or why not?

People do not necessarily understand the links between climate change and their daily lives.

Individual 'causes' of climate change (such as meat-eating) may not be recognised as such, and if they are, may provoke defensive reactions.

If communicating the links between 'problematic' behaviors and climate change, it is best to show these behaviors at scale – e.g. a congested highway, rather than a single driver.





Images of impacts are powerful, but can provoke a sense of helplessness. © Reuters



Images of local impacts of extreme weather events can reduce the 'psychological distance' of climate change, especially if the depicted impacts are non-trivial.





The balance between showing something 'local' and nurturing concern about the wider issues of climate impacts is delicate. Some research has shown how localised messages about adaptation are an effective way of reaching individuals on the right of the political spectrum, but other studies point to the risks of this kind of approach: over-emphasising the local aspects of climate change may reduce people's level of concern about the wider issue.





Most people have difficulties identifying with activists in protest images like this. © Franck Robichon/European Pressphoto Agency



An image of Tar Sands received higher ratings from individuals on the right of the political spectrum.  
Photo: Dru Oja Jay (CC BY 2.0)